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GROUNDWATER – WASTE MONITORING PLAN

SKINNER LANDFILL SITE BUTLER COUNTY WEST CHESTER, OHIO

Prepared for:

Skinner Landfill Work Group
c/o Ben Baker
2020 Dow Center
Midland, MI 48764

Prepared by:

Earth Tech, Inc.
200 Vine Street
Wilder, KY 41076

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LIST OF ACRONYMS

AMP	Air Monitoring Plan
AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirements
BZ	Breathing Zone
CD&D	Construction Demolition and Debris
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CGI	Combustible Gas Indicator
CHSD	Corporate Health and Safety Director
CLP	Contract Laboratory Program
cm/sec	Centimeters Per Second
CO	Carbon Monoxide
CQA	Construction Quality Assurance
CQAC	Construction Quality Assurance Consultant
CRZ	Contamination Reduction Zone
CSDI	Contaminated Soils Design Investigation
CZ	Control Zone
DSW	Division of Surface Water (OEPA)
DSR	Division Safety Representative
EPA	Environmental Protection Agency
EZ	Exclusion Zone
FID	Flame Ionization Detector
FML	Flexible Membrane Liner (low density polyethylene)
FSP	Field Sampling Plan
ft	Feet
ft/sec	Feet Per Second
GCL	Geosynthetic Clay Layer
gpd	Gallons Per Day
gpm	Gallons Per Minute
GWDI	Groundwater Design Investigation
HAP	Hazardous Air Pollutant
HASP	Health and Safety Plan
HSM	Health and Safety Manager
IDLH	Immediately Dangerous to Life or Health
IRM	Interim Remedial Measures
kg/d	Kilograms Per Day
lb/day	Pounds Per Day
LEL	Lower Explosion Limit
LTPP	Long Term Performance Plan
MSL	Mean Sea Level
NIOSH	National Institute for Occupational Safety and Health
NO _x	Oxides of Nitrogen
NWI	National Wetland Inventory
O ₃	Ozone
OAC	Ohio Administrative Code

ODNR	Ohio Department of Natural Resources
OEPA	Ohio Environmental Protection Agency
ORC	Ohio Revised Code
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PID	Photoionization Detector
PLC	Programmable Logic Controller
PM-10	Particulate Matter less than 10 microns
PRP	Potentially Responsible Party
PPE	Personal Protective Equipment
psi	Pounds Per Square Inch
QAPP (QAPjP)	Quality Assurance Project Plan
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RHSS	Regional Health & Safety Specialist
ROD	Record of Decision
SI	Site Inspection
SLWG	Skinner Landfill Work Group
SO ₂	Sulfur Dioxide
SOP	Standard Operating Procedure
SOW	Statement of Work
SPCC	Spill Prevention Control and Counter Measure Plan
SSO	Site Safety Officer
SVE	Soil Vapor Extraction
SVOC	Semi-Volatile Organic Compound
SZ	Support Zone
TDH	Total Dynamic Head
TLV	Threshold Limit Values
TSS	Total Suspended Solids
TWA	Time Weighted Average
u	Micron
ug/l	Microgram per Liter
USACE	United States Army Corps of Engineers
U.S. EPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Services
USGS	United States Geological Survey
VOC	Volatile Organic Compound
yr	Year
WBGT	Wet Bulb Globe Temperature
WZ	Work Zone

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1.0 INTRODUCTION

This document is the Remedial Action (RA) Groundwater-Waste Monitoring Plan (GWMP) for the Skinner Landfill Superfund Site, located in West Chester, Butler County, Ohio. The GWMP has been prepared pursuant to the requirements of Section 13(c)(1) of the draft final version of the Consent Decree dated December 14, 1999 between the United States Environmental Protection Agency (U.S. EPA) and the Skinner Landfill Work Group (SLWG). The purpose of this plan is to monitor the elevation of groundwater beneath the landfill cap area with respect to the maximum depth of buried waste.

1.1 Scope of Work

This GWMP provides the mechanism to evaluate whether waste material underneath the cap is in contact with site groundwater and whether the landfill cap is affecting groundwater elevations beneath the landfill.

The plan provides for quarterly measurements of the groundwater elevation and flow direction for two years (subsequent to the completion of the landfill cap) or until the groundwater data have stabilized for at least four consecutive quarters. The data derived from the quarterly sampling events, will be used to evaluate whether or not waste material underneath the cap is in contact with site groundwater. The monitoring shall be implemented in conjunction with the quarterly groundwater sampling at the points of compliance to assess effectiveness of the groundwater interception system and the potential need to construct an upgradient groundwater control system.

Measurement of groundwater elevations will occur as part of the baseline measurements and subsequent measurements following completion of the RA. A description of these field activities is included in the sections that follow.

2.0 GROUNDWATER MEASUREMENTS

2.1 Introduction

The points of compliance for the GWMP will be the series of 14 piezometers and 15 monitoring wells within and around the landfill cap as listed on Drawing 1 of this GWMP.

Measurements of water levels will be recorded for the five existing monitor wells, and piezometers and monitoring wells to be installed as part of the RA Field Sampling Plan (FSP) and RA Long-Term Performance Plan (LTPP). The elevations will be calculated using the reference elevations data identified in Table 1. These measurements and the baseline measurements will be used to evaluate the potentiometric surface in the vicinity of the landfill cover and interception system.

2.2 Piezometer/Well Integrity

Integrity of all piezometer and monitor wells will be checked and recorded in accordance with the RA LTPP during groundwater elevation measurements. Air monitoring of the piezometers/wells will be conducted in accordance with the RA HASP. Observations of piezometer and well integrity will be documented in the field notebook prior to measuring elevations at the next piezometer or monitor well.

2.3 Measurement of Groundwater Elevations

Water level and depth to well-bottom measurements will be recorded at each piezometer and monitoring well using a portable electronic measuring tape. Measurements will be recorded to an accuracy of ± 0.01 feet and will be documented in the field notebook. The measurements will be made relative to a surveyed notch in the top of the PVC casing. The data will be used to prepare a potentiometric surface map in the vicinity of the landfill cap and the area along the downgradient groundwater interception system-alignment.

3.0 GROUNDWATER/DEPTH OF WASTE

The groundwater elevation measurements from the various piezometers and wells will be used to develop a potentiometric surface map that will include the area under the landfill cover and in the vicinity of the collection trench and cut-off wall. Water levels from successive measurement events will be compared to identify any trends in the data. Furthermore, the potentiometric surface elevations will be compared to the elevation of the bottom of waste. The elevation of the bottom of waste will be identified during the installation of the eight (8) piezometers (P5 and P-8 to P-14) to be located inside the limit of the landfill cover and installed prior to construction of the cover components. As required by the Consent Decree, up to two full years of groundwater level measurements will be required after completion of the construction of the landfill cover, in order to perform the evaluation of groundwater with respect to depth of buried waste.

The data and results of the groundwater depression evaluation will be presented with the quarterly groundwater monitoring results. The results will include a tabulation of data, historical presentation of data using graphs, and potentiometric surface maps. These reports will also include a discussion of data and results. The presentation of the report will be consistent with Section 8.0 of the QAPP.

4.0 GENERAL FIELD PROCEDURES

4.1 Field Equipment Procedures

The portable electronic measuring tape will be used in accordance with the equipment SOP provided in the RA LTPP.

4.2 Decontamination Procedures

Field personnel will use the following six-step process for decontaminating measuring devices to be in direct contact with groundwater:

- Wash sampling equipment in a solution of potable water and non-phosphate detergent;
- Rinse with clean potable water;
- Rinse with hexane (if DNAPLs are present);
- Rinse with methanol (if DNAPLs are present);
- Rinse with organic-free deionized water; and
- Air dry equipment and wrap in aluminum foil if sampling equipment is to be stored or transported.

All decontamination and other investigation-derived liquids will be collected and transported to the decontamination area. All investigation-derived liquids will be discharged in accordance with the procedures described in the LTPP.

4.3 Final Evidence Files

Custody of SLWG's final evidence files will be maintained by SLWG's Project Coordinator. The files will be kept in a secured, limited access area. The content of the evidence file will include at least all relevant records, reports, correspondence, logs, and field log books.

4.4 Preventative Maintenance

The specific preventive maintenance procedures to be followed for field instruments are those recommended by the manufacturers. Field instruments will be checked at the field team's office before they are shipped or carried to the field. These instruments will be checked and calibrated daily before use. Critical spare parts such as probes, electrodes, batteries and standards will be available to the sampling personnel to minimize instrument down-time. Back-up instruments will be available or within one-day shipment to avoid delays in the field schedule.

5.0 SAMPLE PARAMETERS AND SCHEDULE

Baseline groundwater elevation measurements will be performed immediately before installation of the cap and immediately after installation of the cap at piezometers P-7 to P-14 and existing monitor wells, GW-06, 07-R, 24, 26 and 30.

Groundwater elevations at monitoring wells and piezometers will be measured quarterly (every 3 months) beginning approximately one quarter after final agency approval of the constructed RA components.

6.0 DATA REDUCTION AND REPORTING

Raw data from field measurements will be appropriately recorded in the field log books. These data will be summarized in tabular form for attachment to the project reports. Any further reduction of the data for evaluation purposes in the reports will be documented therein.

7.0 CORRECTIVE ACTIONS

Corrective actions must be taken any time a situation develops that threatens data quality. Corrective action may be required if field audits reveal unacceptable deviation from approved procedures and will be addressed in accordance with the LTPP.

TABLES

TABLE 1

GROUNDWATER LEVEL REFERENCE ELEVATIONS

Location	Reference Point	Reference Elevation (MSL) (ft)
*P1 through P14 GW58, GW59, GW60, GW61, GW62A, GW62B, GW63, GW64, GW65, GW66	Top of Well Casing	To be Surveyed
GW06	Top of Well Casing	687.96
GW07R	Top of Well Casing	To be Surveyed
GW24	Top of Well Casing	696.12
GW26	Top of Well Casing	699.27
GW30	Top of Well Casing	678.92

* See Drawing 1 Monitoring Well and Piezometer Location Map for locations of monitor wells and piezometers to be installed during RA.

DRAWINGS

